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Exhibit 9.10

Presented during cross-examination

of Staff witness James B. Petersen

Docket No. 6680-UR-117

Public Service Commission of Wisconsin
Direct Testimony of James B. Petersen
Gas and Energy Division

Wisconsin Power and Light Company
Docket 6680-UR-115

September 12, 2006

Q. Please state your name, business address and occupation.

A. My name is James B. Petersen. I am a Senior Rate Engineer for the Public Service Commission of Wisconsin (Commission) at 610 North Whitney Way, Madison, Wisconsin. I joined the staff of the Commission in March 1989. I have a B.S. degree, an M.S. degree, and a Ph.D. degree in engineering-related areas and am a registered professional engineer in the state of Wisconsin.

Q. What is the purpose of your testimony?

A. The purpose of this testimony is to present information relating to the allocation of costs in this proceeding and to comment on cost allocation testimony presented by Mr. Brian Penington for Wisconsin Power and Light Company (WP&L).

Q. The cost-of-service study (COSS) analysis tool is used in the allocation of electric costs. How does COSS analysis work?

A. The costs to provide electricity should be assigned to customers in a manner that reflects the way that those costs are incurred by a utility. To do this, a COSS analysis is performed on utility costs classified into accounts using the Uniform System of Accounts (USOA). Because many utility costs are joint costs, a characteristic of the usage of a customer class must be used to reflect the impact of that on the utility's costs and to spread out, or allocate, that cost between all the customer classes of the utility. In a COSS, individual account costs are first allocated and then totaled by customer class.

Class total, allocated cost is then compared to class current revenue. The resulting difference between class total allocated cost and current revenue provides an indication of how the utility's rates should be adjusted to better reflect the costs to serve its customers.

Q. What are the basic characteristics of WP&L customer groups and their usage?

A. I divided the 13 WP&L rate tariffs into the three groups of customers: Small Use, Commercial, and Industrial. (*See* Schedule 3, Exhibit ____ (JBP-1)

CUSTOMER GROUP USAGE CHARACTERISTICS			
	Small Use	**Commercial**	**Industrial**
Present Revenue –As Filed	56.6 %	9.4 %	33.9 %
Present Revenue –With $50,000,000 Fuel	56.0 %	9.5 %	34.6 %
Energy Use	44.5 %	10.3 %	45.2 %
Coincident Peak kW	50.1 %	10.5 %	39.3 %

Demand, energy, and customer characteristics such as those shown in the table above are used in a COSS to directly allocate costs to customers in a manner that reflects the way that those costs are incurred.

SUMMARY OF COSS ANALYSIS

Q. Please summarize the COSS performed by WP&L and Commission staff for this docket.

A. COSS results are summarized in Schedule 1 of my exhibit (Exhibit ____ (JBP-1)).

Mr. Brian Penington submitted two COSS for WP&L which vary in the way that distribution plant costs are allocated. In the WP&L Minimum Size COSS distribution plant is allocated using both customer and demand based allocators while in the WP&L Embedded COSS only demand based allocators are used to allocate distribution plant.

This difference in the treatment of distribution costs indirectly influences other costs besides distribution plant costs. General and Common plant, Administrative and General Operation and Maintenance costs, and Income Taxes are costs that are indirectly impacted by the difference between the WP&L Minimum Size and Embedded COSS. Income taxes are allocated on the basis of the Net Return of a class in both WP&L COSS.

The COSS information filed by WP&L uses a Present Revenue in the analysis that is based on the rates authorized by the Commission in docket 6680-UR-114, dated July 19, 2005. This would seem to indicate that WP&L is requesting an electric increase of 27.3 percent. However, an interim fuel adjustment is currently in place for WP&L may be finalized before the hearing in this docket that affects COSS analysis.

I prepared three types of COSS for this docket. Two WP&L methodology-based COSS were developed to emulate the WP&L Minimum Size and Embedded COSS. The third COSS presented utilizes a methodology based on information developed for docket 05-EI-137, titled *Investigation on the Commission's Own Motion Regarding Principles Useful in Electric Cost-of-Service Studies and Rate Design COSS*. COSS using this methodology will be referred to as the "Commission staff COSS," or "CS COSS," in my testimony. The methodology of each type of COSS are compared and summarized in Schedule 2 of Exhibit ____ (JBP-1).

The COSS results presented in Table 2 of Schedule 1 of my exhibit, Exhibit ____ (JBP-1), assume a fuel adjustment to Present Revenue of $50,000,000 which is an estimate of the fuel adjustment that may occur before the hearing in this docket. A $50,000,000 fuel adjustment results in a change in Present Revenue which corresponds to a 5.5 percent increase in overall revenues instead of the 27.3 percent

increase present in the WP&L filing. Present Revenue based on fuel surcharge of approximately $50,000,000 over rates authorized in docket 6680-UR-114. The fuel and tax estimates were provided by Mr. James Wagner and Mr. Thomas Ferris of the Commission staff.

The issue of the appropriate mechanism for allocating for Income Taxes is important in this case since income taxes and the incremental taxes resulting for the authorized change in rates may amount to over $44,889,000. Results from this analysis are included with other COSS results presented in Schedule 1 figures and tables.

TYPES OF COST

Q. How can WP&L electric costs be categorized to assist in allocating costs to customers?

A. Electric costs can be placed into five basic functions: Production, Transmission, Distribution, Customer, and General Costs. Production costs makeup about 58.7 percent of all the costs WP&L will incur during the test year. (*See* Schedule 4, Figure 1 of my exhibit) General costs are another 14.8 percent of the costs.

Q. What type of costs is included under the Production and General functions?

A. Production costs include generation plant investment costs, fuel costs, purchased power costs, and other production-related operating expenses. General costs include items such as administrative expenses, taxes, and return on investment.

Q. How does the allocation of General costs differ from the allocation of Production costs and the other costs?

A. General costs are indirectly associated with how the costs of one or more of the four costs functions of Production, Transmission, Distribution, and Customer are accrued. For example, the Administrative and General costs identified in USOA Accounts 920 through

928 are allocated to classes on the basis of how labor costs for the Operation and Maintenance USOA Accounts 500 through 910 are allocated. Therefore, the indirect allocation of General costs using labor depends on how the other costs are directly allocated. If there are differences in how the directly allocated costs are allocated between two COSS, the allocation of General costs will differ as well. Differences in direct allocators in the Minimum Size WP&L and Staff COSS result in a shift in General cost allocation of over $19,499,000 for this reason. Part of this difference is associated with the use of net return to indirectly allocate income taxes and incremental taxes.

After the indirect allocation of General cost to the other four functions, Production costs make up 68.9 percent of all WP&L costs. Functionalized costs after the indirect allocation of General costs are shown in Exhibit ____ (JBP-1), Schedule 4, Figure 2.

COSS ALLOCATORS AND METHODOLOGY

Q. What allocators are used by WP&L in its COSS?

A. While a number of different allocators are used in the COSS submitted, the most significant allocators in the WP&L COSS are the firm coincident peak demand allocator and the energy allocator. These allocators have added significance because they influence the indirect allocators, such as the allocator used to allocate administration and general costs to customers. Together the firm coincident peak demand allocator and the energy allocator affect almost 70 percent of all WP&L costs.

Allocating Production Costs

Q. Do you have any concerns with the way WP&L allocates power production costs?

A. Yes. WP&L allocates power production plant costs using only a demand allocator. Since electric generation plants are built to provide low cost energy as well as to meet the capacity needs of the utility, energy as well as demand should be used to allocate production plant costs.

Another important difference between the demand allocator used by WP&L in its COSS and the demand allocators used in the Commission staff COSS is that the WP&L demand allocator is based on only the firm coincident demand of customer classes, which excludes interruptible demands. The Commission staff COSS uses both firm coincident demand and total coincident demand as demand allocators, depending upon the cost to be allocated. The difference between firm and total demand is the interruptible demand of the class. Discussion of the impacts of this difference in allocation follows in this testimony.

Q. Why should both energy and demand allocators be used to allocate generation plant costs as is done in the CS COSS?

A. It is like buying a more expensive car to buy less gasoline. There are differences in the plant construction cost and the plant operating expense of each type of electric generation plant. (*See* Exhibit ____ (JBP-1), Schedule 6, Figure 1 and Figure 2) Plant operating expense decreases as plant construction cost increase. Baseload generation plants cost four to five times less to operate than peaker plants while Peaker plants are four to five times less expensive to build than baseload plants.

The fuel used by each type of plant also varies. Baseload plants are typically fueled by coal but there are some baseload plants that are nuclear. Peaker plants are often simple-cycle combustion turbines fueled by natural gas. Several different types of fuel

are used in intermediate load plants. Fuel costs are allocated using energy allocators. For this reason, on-peak and off-peak energy usage is often used to allocate generation plant.

Because baseload plants are built to provide inexpensive energy and to help a utility to meet its demand needs, generation costs should be allocated to customers using both demand and energy allocators.

Q. What ratio of demand to energy allocators do you use in the CS COSS presented in this docket?

A. Commission staff has used a Demand to Energy allocation mix of 60 percent demand and 40 percent energy in previous rate cases. In this docket, I used a mix of demand and energy allocators in a ratio of 2/1 for the Demand/Energy allocation of Production related plant costs.

Q. Why was the 2/1 ratio for the Demand/Energy allocation selected?

A. Information gathered for docket 05-EI-137 indicating that a Demand/Energy allocation mix range of from below 40 percent on demand to 100 percent on demand is advocated for allocating the power production costs by Wisconsin utilities. The use of a 2/1 Demand/Energy allocation mix is intended to provide the Commission with COSS results that are based on a ratio in the middle of the range.

Q. Are all types of generating units allocated on the basis of a Demand to Energy allocation ratio of 2/1 in the CS COSS?

A. Yes. The 2/1 ratio is a simplifying assumption. In order to best reflect the operational purposes of different types of generation plants, a different mix of demand and energy allocation would be needed for each type of plant. For example, Steam, Nuclear, and Hydraulic generation costs could be allocated using Demand Energy mixes of 60/40 for

Steam and 40/60 for Nuclear, while Hydraulic generation costs could be allocated using a 20/80 Demand/Energy and Other Production plant costs could be allocated 100/0 Demand/Energy. Other Production plant costs are associated with Peaker and Intermediate plants which are used primarily to meet the capacity needs of a utility rather than to provide low cost energy so that an allocation mix of 100/0 for this type of plant is reasonable.

Q. Do any other state commissions allocate plant on the basis of both demand and energy?

A. A 75/25 D/E demand/energy plant allocation is used in Michigan. This allocation mix was established by the Michigan Public Service Commission in its order in Case No. U-4771, dated May 10, 1976.

Q. What concerns do you have with the way that the firm coincident demand allocator is used in the WP&L COSS to allocate production costs?

A. Interruptible demand is excluded from the firm coincident demand allocators. This results in interruptible customers receiving a double credit for their interruptible load in the form of both a reduction in their bills and a reduction of class cost responsibility. Because the WP&L interruptible load is associated with the Industrial class, this results in a double credit for the Industrial class. In this case, the Industrial class cost responsibility is reduced over $15,108,000 even though interruptible demand credits total only $8,685,000. The Small Use class and Commercial class costs are increased by over $12,484,000 and $2,624,000, respectively, by this action. The Commission staff COSS corrects for this by including an interruptible credit adjustment process that both reflects the value of interruptible demand credits, $8,685,000, to the Industrial class and capacity costs for all classes.

Another concern is that Interruptible customers are not assigned the cost of any kind of production plant but yet receive the benefits of these plants. This happens when WP&L allocates all of the over $21,540,000 of Class A Revenues credits using an energy allocator which includes the energy use of interruptible customers.

The exclusion of interruptible load from the demand allocator impacts the WP&L indirect rate base allocators, ComLabor and ElecPlant, influences over $59,000,000 of Administrative and General costs and more than $26,134,000 of Miscellaneous Revenue. The revenue responsibility of the Industrial customer class in both the WP&L Minimum Size and Embedded COSS are impacted because of the way firm demand is used as an allocator throughout each COSS.

Q. How are purchased power costs treated in the WP&L and Commission staff COSS?

A. In this docket, Commission staff forecasts purchased power at $335,888,000 of which $130,662,000 is associated with purchase power contract demand charges. At this level, even a small difference in allocators used to allocate a cost can result in large differences in costs allocated to a class, thereby influencing COSS results.

Purchased power costs are treated the same in the WP&L and CS COSS to the extent that purchased power costs are allocated on the basis on both demand and energy in a manner intended to reflect the nature of the purchase power contracts. Unfortunately, the demand allocators used in the COSS are not the same. The WP&L COSS uses its firm coincident demand allocator as its purchase power demand allocator. As a result the WPSC COSS allocation assigns $5,312,000 less in purchased power costs to the Industrial class than does the Commission staff COSS while Small Use and Commercial class costs are $4,390,000 and $922,000 more, respectively.

Allocating Costs Using Energy

Q. Do you have any comment on the WP&L energy allocator?

A. The energy allocator used by the WP&L and CS COSS are the same. The energy allocator used is based on unweighted energy (kWh) sales at the generation level. The CS COSS uses this allocator, rather than a weighted kWh allocator after it was determined that the difference between the two allocators is minimal.[1]

Transmission Cost Allocator

Q. Do the WP&L and Commission staff COSS differ in their treatment of transmission costs?

A. Yes. WP&L allocates Transmission costs using its firm coincident demand allocator. My Commission staff COSS allocated Transmission costs using only coincident peak demand. The differences between these two approaches results in the Industrial class being assigned transmission costs that $3,197,000 lower than in the CS COSS at the Commission staff level of cost. (*See* Table 5, Schedule 5 of my exhibit)

Customer Cost Allocator

Q. Do the WP&L and Commission staff COSS differ in their treatment of customer costs?

A. No. Both COSS allocate customer costs in the same manner. However, because WP&L uses firm coincident demand, instead of total coincident demand, to allocate the more than $32,980,000 of Shared Savings program dollars, Small Use is assigned about $931,000 more of these costs than in the two WP&L COSS. (*See* Table 5, Schedule 5, Exhibit ____ (JBP-1)

[1] The difference between the unweighted class energy allocator and the weighted energy allocator is less than 0.1 percent for any of the customer classes.

Determining Distribution Cost Responsibility

Q. How is the responsibility for distribution costs determined in the provided COSS?

A. There are disputes over how to best assign distribution cost responsibility. The issue is how much of distribution system costs should be associated with the demand needs of customers and how much should be associated with customer-number related line and equipment costs. As noted by Mr. Penington, the WP&L Minimum Size COSS allocates distribution costs using both customer and demand related allocators while the WP&L Embedded COSS uses only demand related allocators. As a result Small Use allocated distribution costs are over $14,116,000 higher in the WP&L Minimum Size COSS than in the WP&L Embedded COSS. Over 87.5 percent of all distribution costs are assigned to Small users and about 8.3 percent to the Industrial class in the WP&L Minimum Size COSS. The WP&L Embedded COSS assigned about 76.9 percent and 15.9 percent of all distribution costs to the Small Use and Industrial classes, respectively.

In my COSS, 50 percent of the distribution costs are allocated using non-coincident demand allocators and 50 percent on allocated using the same customer-related allocators used by Mr. Penington. The 50 percent level was chosen after a review of testimony in 2005 rate cases before the Commission and information presented in the Commission's docket 05-EI-107 on COSS and rates. It is reasonable to use this value because it is roughly the mid-point in the range customer/demand allocation approaches used by the Class A electric utilities in Wisconsin. At the Commission staff levels of costs, approximately 82.1 percent of all distribution costs are allocated to Small Use customers and the Small Use cost responsibility decreases about

$7,237,000 from the WP&L Minimum Size approach while Commercial and Industrial cost responsibility increases about $2,891,000 and $4,346,000, respectively.

Embedded Energy

Q. Have you done an analysis to determine the embedded cost of energy in this docket?

A. Yes. Approximately $400,000,000 of the more than $971,307,000 of costs in this case can be can be associated directly with energy. WP&L associates approximately $353,000,000 with energy. These embedded costs include items such as fuel, purchased power, and production plant allocated on energy. Estimates of embedded costs of energy can be made using this and other available information on energy use.

Q. What is the WP&L embedded cost of energy?

A. The WP&L average embedded cost of energy is $0.03250 per kWh for all classes, as shown in Figure 1 of Schedule 8, Exhibit ____ (JBP-1). The WP&L COSS embedded energy is below the weighted average of on-peak and off-peak current and WP&L proposed Industrial class energy charges.

Q. What is the embedded cost of energy as determined by the Commission staff COSS?

A. The CS COSS average embedded cost of energy is $0.03681 per kWh for all classes. CS COSS embedded energy is above the weighted average of on-peak and off-peak current WP&L Industrial class energy charges.

Indirect Allocators of General Costs and Allocating Taxes

Q. How much cost of this docket is indirectly allocated?

A. About $143,835,000 of all costs are indirectly allocated. Differences in direct allocations, such as production plant costs and distribution plant costs, create indirect allocators that assign the Small Use class costs that are $19,499,000 higher in the WP&L

Minimum Size COSS than in the CS COSS. At the same time, Industrial customers are assigned $16,997,000 less in indirect costs in the WP&L Minimum Size COSS. (*See* Table 8, Schedule 5 of my exhibit.)

Q. What indirectly assigned costs account for most of this difference?

Q. The Small Use class difference in income tax and incremental tax cost allocation between the WP&L Minimum Size COSS and the CS COSS is $21,463,000, an amount roughly equal to most of the differences between indirectly allocated cost dollars in the COSS.

Q. What amount of income tax and incremental tax costs are included in the staff-adjusted level of costs and how are these costs allocated in the WP&L COSS and Commission staff COSS?

A. Income taxes total $24,565,000 in the test year and the incremental taxes total $20,324,000. The results of COSS previously presented in my testimony are based on the allocation of income taxes using an indirect allocator based on the Net Return forecasted for a class by the COSS allocated costs. Incremental taxes are then allocated on the net return after this adjustment has been made. This is the same procedure as that used by WP&L in its COSS. A disadvantage of this approach is that over $44,889,000 of taxes are indirectly allocated based on an allocator that is influenced by <u>all</u> previous allocation decisions. For example, this process for tax allocation results in the WP&L Minimum Size COSS assigning $21,464,000 more in tax responsibility to the Small Use class than in the CS COSS.

Besides Net Return, allocated Rate Base and Present Revenue can be used to allocate income taxes and incremental taxes. Using Rate Base to allocate taxes has the

same weakness as the Net Return method since Rate Base is influenced by the decisions made to allocate plant.

Q. What arguments can be made for using Present Revenue as the allocator for Income Taxes?

A. Unlike either of the other tax allocators, Present Revenue is not an indirect allocator. For this reason it is independent of the plethora of other allocation decisions made in a COSS that contribute to differences in the results of the COSS. Present Revenue also reflects the total dollar base that income taxes will be paid on.

Q. What would be the results of the various COSS if Rate Base and Present Revenue are used to allocate taxes?

A. The results of all three types of COSS using all three types of tax allocation approaches are presented in Schedule 1 of Exhibit ____ (JBP-1)

COSS ANALYSIS CONCLUSIONS

Q. What are your conclusions regarding the COSS analysis you have presented in this testimony?

A. First let me state that it is difficult to discuss COSS results when the level of Present Revenue has not been finalized. Realizing this, my conclusions are as follows:

- A final revenue allocation that roughly assigns about 55.0 percent of all revenue responsibility to the Small Use class, and 9.5 percent and 35.5 percent of revenue to the Commercial and Industrial classes, respectively, is appropriate. This should result in a lower than average increase for the Small Use class of customers, a near average increase for the Commercial class, and an above average increase for the Industrial customer class. At the $920,667,000 level of current revenue and at

Commission staff adjusted levels of costs of my exhibit, this would indicate that increases of 3.7 percent, 5.7 percent, and 8.7 percent increases are appropriate for the Small Use, Commercial, and Industrial classes, respectively.

- Both WP&L COSS understate the revenue responsibility of the Industrial customer class because of the way firm demand is used as an allocator throughout both the Minimum Size and the Embedded COSS
- The WP&L COSS process allocates production plant costs using firm demand and does not give sufficient weight to energy usage by customers in its allocation process.

Q. Does this conclude your direct testimony?

A. Yes, it does.

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